

CLAIMS

What is claimed is:

1. An integrated circuit device comprising: an integrated circuit (140) having a plurality of grounding pads, signal pads, and power pads (125); and a package (100) for mounting the integrated circuit (140); wherein the package comprises, a grounding ring (105) surrounding the integrated circuit (140); and a grounding strap (130) coupling the grounding ring (105) to the grounding pads (120) of the integrated circuit (140).
2. The integrated circuit device of claim 1 wherein the package further comprises a plurality of pad landings (110).
3. The integrated circuit device of claim 2 wherein the signal pads (125) of the integrated circuit are coupled to the pad landings with bond wires (115).
4. The integrated circuit device of claim 3 wherein the bond wires (115) are in close proximity to, but not touching, the grounding strap (130).
5. The integrated circuit device of claim 1 wherein the grounding strap comprises copper conductors.
6. The integrated circuit device of claim 1 wherein the grounding strap comprises gold conductors.
7. The integrated circuit device of claim 1 wherein the grounding strap comprises silver conductors.
8. The integrated circuit device of claim 1 wherein the grounding strap comprises aluminum conductors.
9. The integrated circuit device of claim 1 wherein the grounding strap comprises conductors of a highly conductive material selected from: copper, gold, silver, aluminum and an alloy thereof.
10. The integrated circuit device of claim 1 wherein the grounding strap (130) further comprises, a first conducting material (205) providing a first conductor and having a first length and a first cross-section, the first conductor having a top surface and a bottom surface.
11. The integrated circuit device of claim 10 wherein the grounding strap further comprises, a dielectric material (220) having a second cross-section and a second length, the second cross-section being about equal to the first cross-section of the first conductor, the second length shorter than the first length, the dielectric material being attached to the first

conductor at about the midpoint of the first length, leaving a first gap and a second gap of the first conductor exposed.

12. The integrated circuit device of claim 11 wherein the grounding strap further comprises, a second conducting material (210) applied to the first conductor at the first gap and the second gap, the second conducting material applied so that the second conducting material is substantially flush with the dielectric material; and wherein the grounding strap is formed in a manner so that the first gap couples to the grounding ring (135) and the second gap couples to the grounding pads (120) of the integrated circuit.

13. The integrated circuit device of claim 2 wherein the grounding strap further comprises a first conducting material providing a first conductor and having a first length and a first cross-section, the first conductor having a top surface and a bottom surface.

14. The integrated circuit device of claim 13 wherein the grounding strap further comprises, a dielectric material having a second cross-section and a second length, the second cross-section being about equal to the first cross-section of the first conductor, the second length shorter than the first length, the dielectric material being attached to the first conductor at about the midpoint of the first length, leaving a first gap and a second gap of the first conductor exposed.

15. The integrated circuit device of claim 14 wherein the grounding strap further comprises, a second conducting material applied to the first conductor at the first gap and the second gap, the second conducting material applied so that the second conducting material is substantially flush with the dielectric material; and wherein the grounding strap is formed in a manner so that the first gap couples to the grounding ring and the second gap couples to the grounding pads of the integrated circuit.

16. The integrated circuit device of claim 4, wherein the dielectric material is selected from at least one of the following: polyimide, polyamide, soldermask, PTFE, and TEFLON™.

17. The integrated circuit device of claim 1 wherein in the integrated circuit, the plurality of signal pads and plurality of grounding pads are arranged so that a signal pad (415) is adjacent to a grounding pad (410).

18. A method (600) for controlling impedance of bond wires in packaging a semiconductor device die in a ball grid array package, the method comprising: defining locations (605) of signal and power/ground pads on the device die; selecting a suitable package (610) having a ground for the device die; bonding a ground strap (615) to the

device die ground pads and the package ground, coupling the device die ground (620) pads to the package ground; bonding signal pads, in the vicinity of the ground strap, of the device die to package landings; bonding remaining signal, power and ground pads (625) of the device die to package landings; and sealing (630) the package.